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IN TWO SECTIONS

Section I

IN THIS SECTION

Co-ordinating Material with Production Needs, by Herbert J. Myers... 793

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EDITORIAL DEPARTMENT NOTE

The article in this issue of the *Bulletin* is a straight-forward presentation of the subject indicated by the title, "Co-ordinating Material With Production Needs." The author does not explore the by-ways of speculative purchasing, of adjustment of inventories with sales volume, or numerous other questions which are bound up in the general problem of inventory management. Instead, he assumes a minimum inventory and a policy of purchasing for specific production requirements only, and presents a clear-cut procedure for putting this policy into practice. This article deals with fundamental procedures rather than conditions arising out of the war, but as we all know, most war problems go back to fundamentals. Certainly material accounting and the co-ordination of materials with production requirements is a present-day problem induced by priorities and allocations in the consideration of which it will be helpful to review carefully the fundamentals.

The author of this article, Herbert J. Myers, is a native of Wisconsin, who began his business career as a Civil Service appointee in Washington in 1919. Later he served Lyon & Healy, of Chicago, as Factory Accountant for six and one-half years, while attending evening classes at LaSalle University and Northwestern University. More recently, Mr. Myers has served as Special Accountant with William Wrigley Jr. Co. as Controller of United Radio and Television Co.; as a member of the Systems Staff of Arthur Andersen & Co.; as Special Accountant with the United States Gypsum Co.; and as Factory Controller of the Brunswick-Balke-Collender Co. At the present time he is Controller of the Farnsworth Television & Radio Corporation. Mr. Myers is the author of several articles published in the *N. A. C. A. Bulletin* and other publications, and will be recalled as the author of the first prize essay in the Jordan Essay Contest in 1931.

Articles published in the *Bulletin* present many different viewpoints. In publishing them the Association is not sponsoring the views expressed, but is endeavoring to provide for its members material which will be helpful and stimulating. Constructive comments are welcomed and will be published in the Forum Section of the *Bulletin*.

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FEBRUARY 1, 1942

CO-ORDINATING MATERIAL WITH PRODUCTION NEEDS

By Herbert J. Myers, Controller,

Farnsworth Television & Radio Corp., Fort Wayne, Ind.

Principles Seem Simple

IT IS a truism that nothing can be manufactured without obtaining the ncessary material. This seems so simple that the matter of co-ordinating material with production needs would scarcely appear to present any problems from the standpoint of records and methods. Yet many are the methods and records found in industry—some very complicated, others quite simple. It is the latter which interests us and which will be described herein.

Why Procure Material?

There are many successful operators in the business world who will answer this question by saying, "We procure material so that we can use it to make something." Yes, that's right—too many look at the problem in that manner. Get material to make "something"; but what?

I prefer to look at it a little differently. There is no need to buy material in the hope of making something—just anything. First, I want to know what to make, and how many. When I know these answers, I'll then want to know what kind of material and how much is needed. Not until all these questions are answered will there be any need of material of any kind or in any quantity.

So I am going to proceed on the theory that I have something specific to make, in definite quantity, and that material is going to be procured for use only, and not to keep a storekeeper at work.

Material Control—What It Is

It has been said that perfect material control consists of having the right material, in the correct quantity, in the right place, at the time it is needed. Let's set these simple elements out by themselves so that we can take a good look at them:

1. Right kind of material,

2. Correct quantity,
3. Right place,
4. Time it is needed.

These four elements seem very simple, but to secure them means co-ordination. It doesn't mean getting some of the material in and having it lay around for weeks, or even months, before it is needed.

Material control in its widest sense means co-ordination. It means co-ordinating all the functions and facilities of production. It is the means, methods and records of obtaining this co-ordination that will be described—how to do it in a simple and effective manner for the establishment of either 50 or 5,000 employees.

Physical Control Starts With Design

Until it has been decided what to build (what to do) and it has been designed, no records can be set up. The design engineer should keep in mind the ease of machining and assembly in the plant. He should also design the product to use the standard materials which are easily obtainable and, by the same token, are usually more economical. Once products have been made, and materials have previously been purchased and handled by the plant, the design engineer should always endeavor to use those materials which records show the plant facilities and personnel have been accustomed to handling.

Note, I didn't say, "Use those materials already on hand." This omission was intentional because, if we have co-ordinated material with production needs, we will have no material on hand for this product. However, it is obvious that it costs money to set up new records for materials which are strange to the plant, aside from the time it takes to get the personnel used to handling new and different materials. They have to develop new inspection and test methods which may require new test equipment. Therefore, even though there is no material on hand, but all the control records are already set up, it is also obvious that valuable time will be saved if entries have to be made only to records which already exist, thereby saving the time to create the new records.

The Parts List

So we see that design has much to do with the physical control. When the product is designed, it then must be analyzed into the exact quanties and kinds of materials required to make it. This step creates a "Parts List" or "Bill of Material."

The parts list may be made up in many forms. Some parts lists are an integral part of an assembly drawing. Others are on a separate sheet or sheets which list only parts and/or sub-assemblies. Standardized products may be built with few or no drawings provided models, patterns, and above all, complete parts lists and route sheets (operation instructions) are furnished the operating men. A simple parts list, simple in form and separate from drawings will always be more practical in any manufacturing operation.

From the standpoint of this outline, which will confine itself to material, when we obtain a parts list for each product, we have our "what to do." We can now plan how we are going to do it.

Planning How To Do It

We may now assume that the engineering department has completed the first model to be used as a standard and that they have furnished a complete and final parts list to everyone who has anything to do with the manufacturing operations. In most products there will be many parts which can either be purchased or manufactured. The parts should be analyzed by the production or process planning engineer to determine the following:

1. Is it practical to make these parts?
2. Can we make them as economically as we can buy them?
3. Do we have the capacity to make them regardless of cost?

Once the process engineers have decided what parts to make, they next must decide on the material sizes which are the most economical. In some cases they may decide on the kind of material although usually that has already been specified by the design engineer.

Except for the parts which must be made or bought, most other materials to be purchased will already be known. All material to be bought will now be entered on some kind of production control records and the next step is to determine the quantities to

buy and the date needed. This leads us up to where we must consider the finished product.

When material is needed we must begin with the finished product. We must first determine when we need the finished product; what quantities by months, weeks, or days are needed. This is the basis for determining when to schedule material receipts for either parts fabrication and/or final assembly.

Budgeting the Sales

We can only very briefly refer to budgeting the sales. They may be budgeted for financial control either by models and units, or by dollar volume only. However, before they can be of any use for planning material requirements, they must be budgeted in quantities by models. A budget in any other form is of no use to a material or production control department. If the budget is not furnished in units, then some other planned production release is essential.

The "Go-Ahead"

When a production man has a product on which design is complete, along with the prints, parts lists, process charts, etc., he is ready for the go-ahead. However, he must not start to make anything until he is given a production release in some form, which specifies how many of each product he is to manufacture, and at what rate per day, week or month. This will constitute his go-ahead. There may be plants and production men who continue to operate on the basis of their judgment of what to make and when, or who replenish stock from some system of minimum stock requirements, economical lot sizes, etc., but without production releases based on some definite planned schedule the plan cannot be called production control or co-ordinating material with production needs.

Assuming that a production control man has drawings, parts lists, and a production release (Production Order) showing by models the quantities of each to be made and the rate of production he can now go ahead with his part of the program.

The Record Requirements

The requirements for records that will give the necessary in-

formation for control are few and simple. Let's take a look at them first before discussing what form the records shall take. The requirements are the following:

For every item of material or part,

1. What are the total needs for each item to complete the production authorized?
2. How many have been covered by purchase orders?
3. On what dates are they due in our plant and how many are due on each date?
4. How many have been received to date?

The foregoing four items are all that are necessary for control. Note, that balance on hand is not shown and is not an essential to production control despite possible claims to the contrary.

There is no one best record form to display the four production control requirements. These four essentials may be kept on a single sheet of paper if there are not too many transactions for each item. A simple form is illustrated in Exhibit 1.

The Record Requirements

Exhibit 1 is a form that can be used in a ring binder and is 11" x 8½" in size. It can be bound in a sectional post binder and widened out if desired. It will serve the needs of a business of almost any size or for any number of items. However, it requires the writing of a separate purchase requisition, unless the purchase order can be written directly from this production control sheet, and usually this is only practical in a very small company. A very useful addition is a "Permanent Requisition" which can be filed in the same packet if visible card record equipment is used (see Exhibit 2).

Before leaving the record form illustrated in Exhibit 1, there are several features that are worthy of special reference.

PRODUCTION RELEASE RECORD

In this section production releases are entered and posted as soon as they are received and before any other calculations are made. This same operation is performed for every item of material or part for which the "used on" section shows a model that appears on the release. Once this posting is

NAME MACHINE BOLT AND NUT 3/8" X 2" PART NO 4133

MATERIAL DESCRIPTION

STANDARD COST $20.50 M CHARGE A/C 4510

USED ON	401	402	403												
QUANTITY	5	4	4												
USED ON															
QUANTITY															

PROD. RELEASE RECORD			REQUIREMENTS	
No.	MODEL	QTY	QTY	CUM
11	401	100,000	500,000	500,000
11	402	50,000	200,000	700,000
11	403	150,000	600,000	1,300,000
25	Spec.	10,000	10,000	1,310,000

DELIVERY SCHEDULE		
DATE	QTY	CUM
3/23	45,500	45,500
3/30	45,500	91,000
4/6	45,500	136,500
4/13	45,500	182,000
4/20	45,500	227,500
4/27	45,500	273,000

RECORD OF RECEIPTS					
DATE	R.T. No.	PUR. ORD.	QTY	ORDER TOTAL	CUM
3/23	75	304	5,000	5,000	5,000
3/30	84	304	6,000	11,000	11,000
3/31	90	375	20,000	20,000	31,000
4/2	104	304	20,000	31,000	51,000
4/3	175	375	25,000	45,000	76,000
4/6	130	304	30,000	61,000	106,000
4/7	145	375	35,000	80,000	141,000
4/10	186	304	40,000	101,000	181,000
4/13	175	375	30,000	110,000	211,000

PURCHASE RECORD

CODE	NAME OF VENDOR
1	Bolt & Nut Mfg Co.
2	Nelson Bolt Co.
3	
4	

DATE	VEN. CODE	PUR. ORD.	PRICE	QUANTITY	CUM
3/10	1	304	20.50/M	100,000	100,000
3/14	2	375	21.00/M	500,000	1,300,000

EXHIBIT 1

done, the quantities needed can be quickly and easily calculated. The sheets can be given to a group of calculator operators and the job done quickly by skilled operators.

Requirements

In this column is entered the extended quantities for each model entered in the release column. Here a short cut may be taken by the calculator operators if there are quite a few models entered. They can cumulate the totals in their machines as they calculate and only make the total new cumulative entry. This will save posting.

The Delivery Schedule

The next operation is to determine when the material must be delivered so as to meet required production schedules. This must be done in connection with the finished product completion dates. Every item of raw material and parts must tie into the final assembly schedule in perfect balance or it will be impossible to keep the assembly going and meet the delivery to finished stock and/or to customers as planned.

Therefore, starting with the completion dates and quantities of the finished goods, every item must be converted into the number required for a specific day, week or month. This is what determines the dates and quantities shown in the delivery schedule column and on the purchase order.

The Purchase Order Record

The next step now is to write the purchase requisition, giving not only the quantity to be purchased but also in what quantities and on what dates the order is to be shipped. (If a permanent requisition is used, it will only be necessary to fill it in.)

With the placing of the purchase order there is another important step remaining before any material is going to be available. That is follow-up. The follow-up of material is an important link in material procurement. It matters little where it is done, either by the purchasing department or the production control department, but it must be done or receipts will be very irregular. The record illustrated in Ex-

hibit 1 is primarily designed to handle the follow-up in the production control department by the clerk who has charge of the record. However, if the follow-up is by the purchasing department some duplicate of the two columns "Delivery Schedule" and "Record of Receipts" will have to be kept because part of the record shown on Exhibit 1 cannot and should not be dispensed with by the production control department.

RECORD OF RECEIPTS

In this column should be posted receipts from the receiving tickets the first thing each morning. At the same time that posting is made, the cumulative receipts should be compared with the cumulative delivery schedule under the corresponding date. If the cumulative total is not equal to that in the schedule column, then the item needs attention immediately, or if the supplier cannot meet the schedule, a rearrangement of schedules in the factory will be necessary to avoid a shut-down. Note that on April 6th the receipts were behind delivery schedule—

Date	*Scheduled*	*Received*
4/6	136,500	106,000

but by the 13th receipts had passed the scheduled requirements, so that now it is time to hold down on deliveries in order to avoid excessive investment in inventories. This is an example of co-ordinating material with production requirements.

A Simple Problem

Assume a business that assembles into paper bags, various assortments of machine bolts and nuts which are sold as assortments to the general public. It assembles as a regular line the following three assortments:

Part. No.	*Description*	*Assortment Numbers* 401	402	403
4011	Machine Bolt and Nut—⅜ x 1"	3	4	5
4062	Machine Bolt and Nut—⅜ x 1½"	4	4	3
4133	Machine Bolt and Nut—⅜ x 2"	5	4	4
4154	Kraft Paper Bag	1	1	1

The foregoing is the equivalent of a parts list.

Next we must determine how many of each assortment will be needed, and from the sales department we obtain the following requirements for the next fiscal year:

			Schedule of Requirements by Part Numbers			
Assortment	*Quantity*	*When Needed*	*4011*	*4062*	*4133*	*4154*
401	100,000	3,500 weekly....	10,500	14,000	17,500	3,500
402	50,000	2,000 "	8,000	8,000	8,000	2,000
403	150,000	5,000 "	25,000	15,000	20,000	5,000
		Weekly Requirements	43,500	37,000	45,500	10,500

Total necessary to purchase will be as follows:

		Requirements by Part Numbers			
Assortment	*Quantity*	*4011*	*4062*	*4133*	*4154*
401	100,000	300,000	400,000	500,000	100,000
402	50,000	200,000	200,000	200,000	50,000
403	150,000	750,000	450,000	600,000	150,000
	300,000	1,250,000	1,050,000	1,300,000	300,000

The foregoing calculation could not be so easily made if the finished product were an automobile, refrigerator or radio with hundreds or even thousands of parts to each model. Hence, the reason for some form of record similar to that illustrated in Exhibit 1. The entries shown on Exhibit 1 are for part #4133 shown above.

The Problem Applied

Exhibit 2 illustrates how a card file is made to serve for holding the records, which contain the same elements as in Exhibit 1, except that they are designed especially for the card file. The forms illustrated as Forms A, B, C, and D are some that are actually used by a radio manufacturer. The forms contain the same entries as those shown on Exhibit 1. The entries are all taken from the simple problem just exhibited. The following description of a practical application is written in the form of instructions.

Production Control Records To Be Kept

The records to be kept are:—

FORM A

This is designed to be used as a permanent requisition. It

provides spaces for the permanent information such as part number, description of the material, standard price, account number to charge, vendors, terms and prices. All of this information has to be repeated on the usual purchase requisition. However, with this form, only the quantity to buy needs to be entered, with the code number of the vendor, shipping instructions, F.O.B. point, and the price. The requi-

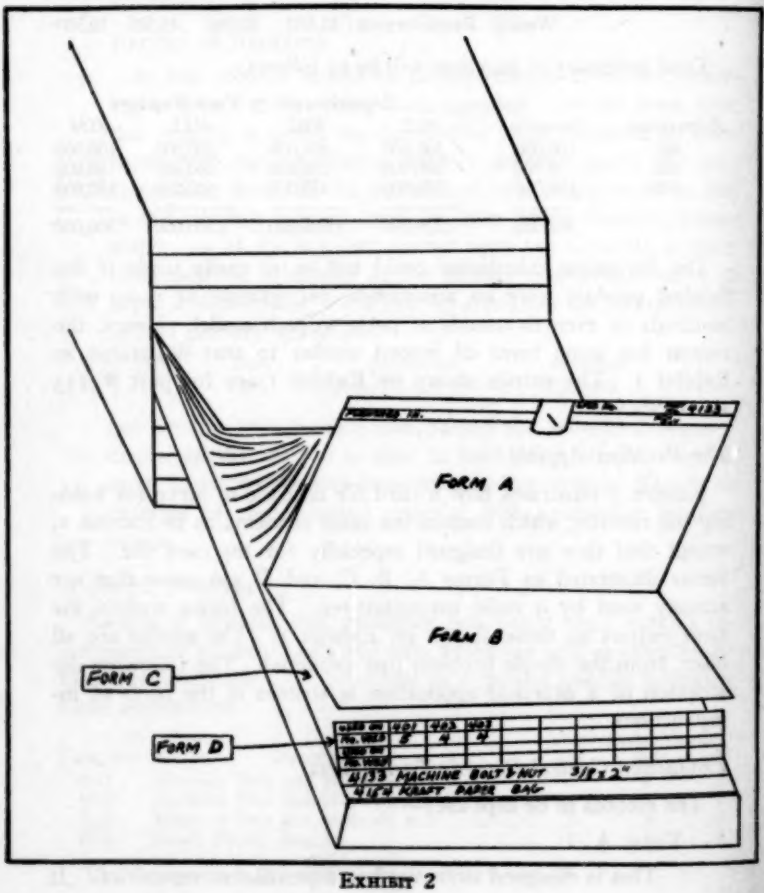


EXHIBIT 2

FORM NO. 55 MACHINE BOLT & NUT 3/8 X 2" SPEC NO. PART NO. 4133

MINIMUM BUY

FURNISHED IN

WT. PER 100 PCS. OR FT.

REMARKS:

UNIT OF MEASURE

CODE OR CLASS

STANDARD COST $20.50M CHARGE ACCT. NO. 4510

	VENDOR	ADDRESS	TERMS
1	Bolt & Nut Mfg. Co	Chicago, Illinois	2/10/ 2/30
2	Nelson Bolt Co.	Minneapolis	
3			
4			

MARK PURCH. ORD.

1	FRT	5	AS SCH'L'D
2	EXP.	6	SHIP COMP. AT ONCE.
3	P. P.	7	AS NOTED
4	TRK.	8	WIRE SHIP DATE

CURRENT REQUIREMENTS AND RECOMMENDED PURCHASES					INVENTORY → / DUE ON P.O. →		DELIVER TO PLANT / DEPT.								PLACED BY
DATE	CONTRACT NO.	QTY.	CUMULATIVE	OK	DELIVERY SCHEDULE	QUANTITY	PURCH. NO.	CODE	DATE	SHIP INS.		FOB	PRICE	CONFIRMAT'N	
					45,500 Wkly starting	800,000	304	1	3/10	1	5	O.P.	20.00M		E.Br.
3/10		1300pcs	1,309,000	W/K	by 3/22	500,000	375	2	3/14	1	5	O.P.	21.50M		E.Br.

FORM A

INVENTORY 1500 **MATERIAL FOLLOW-UP RECORD** PART NO. 4133 FORM NO. 168

Date	Order No.	Rec. No.	Quantity	Order Total	Cum. Receipts	Total Pcs. Good -To	Date	Order No.	Rec. No.	Quantity	Order Total	Cum. Receipts	Total Pcs. Good -To
3/23	304	75	5000	5000	5,000	6500							
3/30	304	84	6000	11,000	11,000	12,500							
3/31	375	90	20,000	20,000	31,000	32,500							
4/2	304	104	20,000	31,000	51,000	52,500							
4/3	375	125	25,000	45,000	76,000	77,500							
4/6	304	130	30,000	61,000	106,000	107,500							
4/7	375	145	35,000	80,000	141,000	142,500							
4/10	304	156	40,000	101,000	181,000	182,500							
4/13	375	175	30,000	110,000	211,000	212,500							

FORM B

PART NO. 4133 **REQUIREMENTS AND RELEASE RECORD** CARD NO.

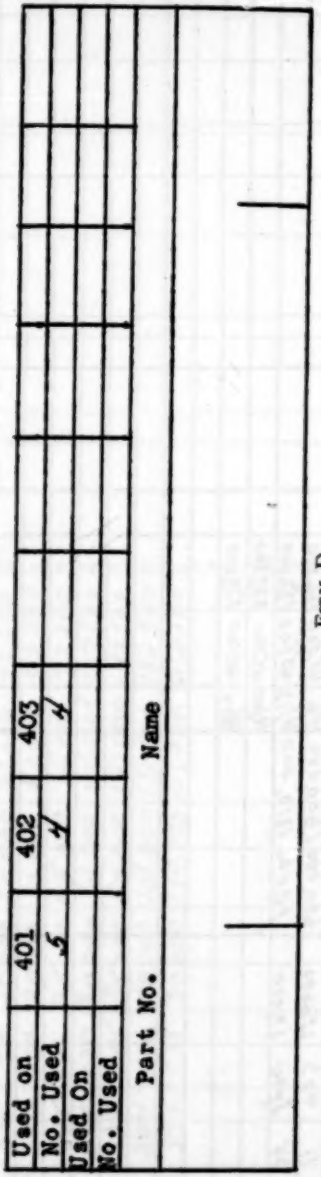
FORM B

PART NO. 4133 — REQUIREMENTS AND RELEASE RECORD — CARD NO.

SIZE AND DESCRIPTION Machine Bolt & Nut 3/8 x 2" — STD. COST

AUTHORIZATION QUANTITIES					PARTS REQUIREMENT		DELIVERY SCHEDULE						PURCHASE ORDERS				INV. → DUE ON P.O. QTY.	∅ C CUM.
DATE	AUTH. NO.	MODEL OR ASSY.	AUTH. QTY.	√	QUANTITY	CUM. QTY.	DT.	QTY.	CUM.	DT.	QTY.	CUM.	REQ. DATE	VENDOR	DATE	PUR. ORD. NO.		
3/6	11	401	100,000		500,000	500,000	3/23	45500	45500				3/10	Bolt & Nut Mfg Co	3/10	304	800,000	800,000
3/6	11	402	50,000		200,000	700,000	3/30	45500	91,000					Nelson Bolt Co.	3/14	375	500,000	1300,000
3/6	11	403	150,000		600,000	1,300,000	4/6	45500	136,500									
3/15	25	Spec	10,000		10,000	1310,000	4/13	45500	182,000									
							4/20	45500	227,500									
							4/27	45500	273,000									

FORM C


Used on
No. Used
Used On
No. Used
401
5
402
4
403
4
Part No.
Name
FORM D

sition is so designed that only one line is used for each purchase and the requisition is used over and over again.

FORM B

This is primarily a record of receipts. It is designed so that it rides over the "Requirements and Release Record," Form C, and is held in the file by Form C.

FORM C

This form is the basis for calculating total quantities required. It is the form to which all releases, by models and quantities, are entered. The calculations are then made and the total quantities entered. The delivery schedule is also determined and entered to be used later, when receipts are being posted, to co-ordinate receipts with the needs as reflected by this column.

FORM D

This is an insert and as designed furnishes a convenient medium for showing the quantities of the part used on each model. It also serves as an index, the extreme edge providing the indexing that shows on the visible or exposed part. The balance of the insert, that part that extends over Form C about an inch, shows the models on which the part is used. This then furnishes one of the multipliers for calculating the quantities when a production release is issued.

The production control department will keep a set of the four forms just described and illustrated, for each part number and/or raw material item which must be bought. The parts or raw materials are to be determined from parts list and/or bills of material.

Authority to Buy

No material can be purchased for any production until a formal production release has been issued. The production release, Form E, will be issued by the vice-president in charge of production only after a complete review of the sales department's requirements, preferably by a management or budget committee. The sales requirements may be presented in any form that seems to be the most practical or whatever form is in use by the company in question. This applies to all standard sales models. Special or-

PRODUCTION RELEASE No. 11

DATE March 6, 1941

	Model No.	Quantity		Description	Remarks or Special Instructions
		This Release	Cum.		
Copies to:	401	100,000	100,000	Bolt & Nut Combination	3500 weekly required
V. PRES.	402	50,000	50,000	" " "	2000 " "
PROD. MGR.					
COST DEPT.	403	150,000	150,000	" " "	5000 " "
CONTROLLER					
PURCHASING					
ENGINEERING					
List Other Names as Required					

The above models are authorized for production. Purchase of materials and other necessary tools and/or supplies are hereby authorized.

APPROVED *J. M. Prodem*
Vice President in charge of Manufacturing

FORM E

ders will also be released on the same production release form but will be released only after an order or contract has been accepted and which furnishes the basis for the release.

Entering to the Production Control Records

The production control division will, immediately upon receipt of a new production release, have the quantities released entered to Form C in the section "Authorized Quantities." They will enter the date of the release, the release number (Authorization Number), the model number, and the quantity released. Care must be exercised so that no entries will be made for any model number which does not appear on the insert Form D.

Once all models and quantities which appear on the production release are entered, the calculation of the total quantity required for each item can start. All entries to complete a drawer of cards should first be completed. The drawer should then be pulled and turned over to a calculator operator who will proceed to extend the quantities for each model on Form C by the quantity shown as used on the corresponding models which appear on Form D insert. If several models are shown, as on the illustration, the calculation can be cumulative in the machines and added to the previous cumulative quantity and only one entry made. This saves not only several posting operations but also several machine operations.

When Should Material Come in Plant

After the calculated quantity is available, it is necessary to know when each item of material is going to be needed for production and in what quantities by days, weeks or months. Before this can be determined a master schedule must be worked out showing the quantities of each model that are wanted by days, weeks or months. Then the quantities of each item of material should be scheduled to come in accordingly with some allowance for delays. It is not necessary to work out in detail every item for the entire release or for the entire master schedule, except for the first month or six weeks, because it may become necessary to change the rate of production as well as the balance between different models as the season progresses.

Preparing the Permanent Requisition or Buy Card

When both the total quantity and rate is available, the Permanent Requisition, Form A, can be filled out. The current requirements section is filled in. Only the quantity needed, the rate and dates needed, must be filled in because with this kind of form all other information is already prepared and shown on it as permanent information; hence "Permanent Requisition."

When a new purchase is to be made, only the difference in quantity, between "Parts Requirement" section cumulative column and the "Purchase Orders" section cumulative column is to be purchased. Therefore a quantity sufficient to bring the total purchases in balance with "Parts Requirement" on Form C will be entered to the Permanent Requisition, Form A, in the "Current Requirements" column. At the same time the date this entry is made will be entered in the "Purchase Orders" section of Form C under "Requisition" date. The balance of this section will have to be filled in after the permanent requisition is returned because not until then will it be known who the vendor is or the order number, date of order, etc. The purchasing department may split the quantity between two vendors as indicated by the present entry to the forms. The permanent requisition is now ready to send to the purchasing department.

Writing the Purchase Order

When the buyer receives a group of "permanent requisitions" he has, or should have, all the necessary information on the cards themselves. All he has to do is record the code number of the vendor he selects, fill in the quantity (the quantity is repeated here by the buyer, but this is to leave him free to split the purchase if he desires, or he may choose to buy less but never more without executive committee approval), shipping instructions, F. O. B. point, price and initial the card. The card is then handed to an order typist who types the order, enters the date and order number in the column indicated and returns the card to the production control department, where it is filed back in the top flap of the card file under its proper part number.

Follow-Up

When the permanent requisition is received back from the buyer, the order number, vendor name and quantity ordered (if

quantity is different) is entered to the "Purchase Order" section of Form C. If the quantity is split between two suppliers, the original quantity will be changed to agree with the purchase orders placed and the quantities added to the cumulative total. The buy card is then inserted in the top flap in the card file and only follow-up and receipt of the material is left. This is often the most difficult job.

There should be some signalling system provided. Here again is where the card file facilitates signalling as signals can easily be inserted under the lip of the flap. The file should then be gone through daily to see if any of the items have not been received by the dates the signals are set. In those cases where deliveries are not on schedule, a follow-up card or telegram must be sent, or a telephone call made.

Recording Receipts

The first thing, each morning, receiving tickets should be sorted in part-number order (only one item should be written on one receiving ticket) to facilitate posting. The date, receiving ticket number, purchase order number, and quantity are posted in their respective columns. Then the order total is brought up to date. This is done by referring back to the total opposite the last time the subject order number appeared and adding to it the quantity just received. This then gives the total received on each order, and to know the balance due on any order it is only necessary to refer to the quantity on order on either Form A or Form C and subtract the total received against the order from the total ordered under the same order number.

Next the quantity received is added to the cumulative receipts column. This column should be the total received since last inventory.

The quantity received is also added to the column "Total Pieces Good To." The only difference between this column and the total receipts column is that it has the inventory added to it. The caption "Good To" means receipts plus beginning inventory, and is good for production to that many pieces based on the models shown on the insert Form D. However, this column can be combined with the column headed "Total Receipts" and can be made

to serve the same purpose by entering the beginning inventory as the first entry and adding cumulative receipts to it thereafter.

When posting receipts to the record it is easy to compare the cumulative receipts, or "Good To" total with the delivery schedule cumulative column on Form C. Just as long as the "Good To" column is equal to or exceeds the cumulative column of "Delivery Schedule" on Form C, on a corresponding date, there is sufficient material to meet production needs. The delivery schedule column should not be posted too far ahead because it may become necessary to change the rate of delivery based on later changes in the rate or variety in the models being produced.

The first sign of receipts slowing down or dropping below the cumulative delivery schedule for the same date is a signal for immediate action. The part number of such items should be noted, as the receipts are posted and then immediate action taken. The action may require letters, phone calls or telegrams. It may even require a trip to the supplier's plant in extreme cases.

It is the simple comparison of receipts with the delivery schedule column that results in co-ordination of material with production needs. It works with these records just the same as with a chart, but a chart is rather limited or becomes very cumbersome.

The kind of record that has been described and illustrated provides a simple economical way of handling what otherwise might be a complicated and expensive clerical job. It is a simple way of doing an effective clerical job. This is not written with the idea of selling a clerical method because the job can also be done by other methods. However, it is believed the type of record and methods described herein is the most economical clerical method that will do the job properly.